

Committee on Resources

Subcommittee on Forests & Forest Health

Statement

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**The House Committee on Resources
Subcommittee on Forests and Forest Health
Hearing on the Inter-relationship
of the Forest Service's Rulemakings and Regional Plans
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Madam Chairman and members of the Subcommittee, I am pleased to be here this morning to discuss the inter-relationship of the USDA Forest Service's recent rulemaking efforts and ongoing regional planning. I am currently an Associate Professor and Assistant Director of the Graduate Program in Environmental Science and Public Policy at George Mason University. However, I am here today as a private citizen and forest ecologist.

I will address the effects of these rulemaking and planning activities on two aspects of managing the national forests in the Sierra Nevada of California: forest health /fire risk and collaborative stewardship. I believe that many of the issues and concerns that I will discuss can be applied to other parts of the nation, especially where national forests are an important part of the local economy. My comments are based on the relevant Forest Service documents and my personal experience as a third generation Californian and as an Assistant Station Director and Station Director of the Pacific Southwest Forest and Range Experiment Station, and Regional Forester of the Pacific Southwest Region in California from 1983 to 1994.

I will briefly review the current forest management situation on the national forests of the Sierra Nevada, identify the major rulemaking and planning efforts that affect these forests, and then look at how these efforts address the two issues of forest health/fire risk and collaborative stewardship and whether they appear to provide a cohesive strategy and framework for management of these national forests.

Current Forest Management Situation **Forest Conditions:**

The distribution and composition of the forests of the Sierra Nevada are a product of a number of factors. The most important affecting the general distribution of forests are the Mediterranean climate, temperature, and moisture. Because mean temperatures decrease and moisture increases with increasing elevation and latitude, the forest types are generally distributed within elevational bands from the foothills up to the crest of the Sierra Nevada and down the rain shadow on the eastern slopes. These distributional bands occur at lower elevations as you go from south to north. Because of the long dry summers characteristic of California, the local availability of soil moisture during the growing season affects forest composition and stand density within these elevational bands. For example, the distribution of giant sequoia groves in the central and southern Sierras is greatly influenced by local soil, aspect, and topographic conditions that result in adequate soil moisture during the growing season..

The pattern of forest cover as you move up and over the mountain range is remarkably similar from south to north. A band of oak woodlands/oak savannah occurs at the lowest level in the foothills; oak and ponderosa pine occur at the next band, with the proportion of pine increasing with elevation; next is the Sierra Nevada mixed conifer forest, the most extensive and economically important forest type in California; and at the highest elevations is the California red fir type. Finally, as you move into the rain shadow on the eastern slopes, you find the ponderosa pine type.

The ten national forests of the Sierra Nevada and Modoc Plateau within California (the Sierra Nevada Forest Plan Amendment also includes that portion of the Humboldt-Toiyabe National Forest in Nevada that is in the Sierra Nevada) cover 11.5 million acres (41 percent of the land area of this region) and represent an outstanding diversity of plants, animals, scenic beauty, recreational opportunity, and community economic wealth. These forests include all of the Sierra Nevada vegetation types. The total acres of the dominant timber types on the national forests are: hardwood- 304,043 acres; ponderosa pine (westside)- 771,952 acres; mixed conifer (Douglas-fir and mixed conifer)- 452,504 acres; mixed pine- 456,263 acres; giant sequoia- 13,138 acres; red fir- 640,534 acres; eastside pine- 846,950 acres; lodgepole pine- 332,754 acres; and eastside white fir- 183,830 acres ¹ (Table 3.1b).

Role of Fire:

The most important factor affecting stand structure within these forest types historically has been natural and man-caused disturbances, especially fire. Fire is a natural evolutionary force that has influenced Sierran ecosystems for millennia, affecting biodiversity, plant reproduction, vegetation development, insect outbreak and disease cycles, wildlife habitat relationships, soil functions and nutrient cycling, gene flow, selection, and sustainability.²

In most lower-elevation oak woodlands and conifer forest types, presettlement fires were frequent, collectively covered large areas, burned for months at a time, and, although primarily low to moderate in intensity, exhibited complex patterns of severity. Mid- to late-nineteenth century timber harvest changed forest structure, altered local microclimate, and fuel accumulation resulting in increased fire severity. Extensive logging of forests occurred to build towns, railroads, and provide the timbers needed in the gold mines. This was followed by intensive grazing by both cattle and sheep which further changed the native forest cover. These effects have combined with fire suppression beginning early in the twentieth century to dramatically change natural fire regimes and alter ecological structures and functions in Sierran plant communities.

Elevation and latitude also affect natural fire return frequencies. At lower elevations and latitudes, fires

occurred a higher frequencies, in the order of every 5 to 15 years. At higher elevations and latitudes, return intervals were longer, 20- to 30- years or more. Median values for fire return intervals are consistently less than twenty (and as low as four) years for the foothill, ponderosa pine, and mixed conifer zones.² Only one study, in high-elevation red fir, found a median return interval greater than thirty years.

Native Americans regularly used fire to manage vegetation especially in the oak woodland/oak savannah, oak-ponderosa pine, and California mixed conifer forests. The high frequency natural- and Native American- caused fires produced a complex mosaic of forest stands and often resulted in open, park-like conditions with limited forested understory. Lightning caused fires could start any time in the early spring or summer and burn unabated until fall rains or snow would extinguish them. These fires could cover large areas as they burned through the understory. Occasionally, where forest fuels had accumulated or during periods of hot, dry weather, the fires would move into the crowns and kill patches of trees and create openings from one-third to a few acres in size where regeneration of a new forest would occur. Recent evidence suggests that forest conditions, from open and park-like to dense, were highly variable across the landscape.²

The combination of early timber harvesting practices, cattle and sheep grazing, and fire suppression have resulted in profound changes in historic stand densities and structures throughout the Sierra Nevada mountains. Today's forests are generally thought to be outside the historic range of variability. They are more prone to insect attack, especially from bark beetles (see map "Forest Lands Most at Risk to Insects and Disease" USDA Forest Service), and to catastrophic stand destroying wildfires due to high stand densities and the presence of a continuous fuel ladder from the forest floor up into the crowns of the overstory. Forest Service estimates show that total growth on the Sierran national forests is about 2 billion board feet per year, while current removals are only 313 million board feet combined green timber and salvage³ and ¹(Table 5.1a). Forest inventory estimates show about 500 million board feet of mortality annually. However, it appears that these forests are continuing to accumulate biomass. For example, an internal Forest Service draft document estimates that on the Sierran national forests there may be over 26 billion board feet of excessive fuels.³

Total acres burned shows no overall trend during the twentieth century, in contrast to the marked reduction in burned area from the presettlement era to the twentieth century.² However, fire characteristics have changed. For example, the proportion of total acres burned by lightning-caused fires and the average size of lightning fires have increased in recent decades. One explanation is that many lightning ignitions occur simultaneously during thunderstorms and stretch available fire-fighting resources so thin that not all fires receive adequate initial attack.

Conflicting Demands:

At the same time, the Sierra Nevada has experienced large growth in human populations, with many of the foothill and lower slope counties among the fastest growing in the State. About one in ten people in the United States live in California, about 80 percent of them in urban areas such as the Los Angeles basin, Fresno, San Francisco Bay Area, and Sacramento. This burgeoning population is putting tremendous pressures on the national forests for an increasing range of often competing and conflicting uses. For example, the national forests in the Sierra Nevada and Modoc Plateau provided 38.7 million recreation visitor days in 1996, with driving for pleasure accounting for about 21 percent of the use¹(page 3-554). At the same time, timber harvest levels have declined from a high of about 900 million board feet per year to

about 147 million board feet (green sales) today. While the national forests cover 20 percent of the land area of California, they contribute 45 percent of the state's water runoff. These forests are increasingly valued for recreation, spiritual renewal, as a source for water, and for other largely non-consumptive uses. At the same time, California increasingly imports its mineral and forest products needs from other states and nations.

Managing Forest Health and Wildfire Risk:

The threat of catastrophic wildfire is generally thought to be the greatest risk to California's forests. To deal with this threat, most scientists and professionals agree that it will be necessary to restore these forests to conditions within the range of natural variation. This means restoring both natural stand structures and ecological processes, especially the role of fire. However, there is a continuing debate over the best way to achieve restoration. Some argue that you should restore natural processes, especially the role of fire, first to truly duplicate natural structures. Others believe that you should restore natural structure first, often using mechanical methods to remove understory vegetation before reintroducing fire. I believe that both arguments have merit depending upon the local conditions. Since many forest stands are far outside the natural range of variation, fire behavior can be unpredictable and risky, especially given the intrusion of housing developments and communities into the forests. Here, removal of vegetation by mechanical means may be necessary. Many forest fuels specialists suggest the development of "defensible fuel zones" and "shaded fuel breaks" to protect communities and break large areas of high risk forests into smaller, more easily protected blocks.

Use of prescribed and natural prescribed fires can be safely managed only within a narrow window of weather and fuel and soil moisture conditions. Use of prescribed fire is also subject to air quality restrictions which further restrict the number of days in which it can be used. For example, the Clean Air Act (1977 Amendments) provides protection of air quality for national parks and designated Wilderness areas (Class I airsheds). Every national forest in this region is downwind from a national park, designated Wilderness, or both. And, underburning produces more particulates per ton of material consumed than pile burning, and has a greater impact on visibility ¹ (page 3-224).

Because of the complex mosaic of vegetation, restrictions on timing and use of some tools, the proximity of homes, communities and businesses, most scientists and managers support adaptive management and use of site specific prescriptions, rather than a "one size fits all" approach. A full range of tools will be needed to improve the conditions of these forests.

Intergovernmental and Community Coordination:

Because of many conflicting demands on a limited resource throughout the State for a number of decades, California has been a leader in the development of mutual assistance and coordination mechanisms, such as the incident command system for managing wildfire suppression and natural disaster response, regional councils of governments, and the Coordinated Resource Management Planning process of the USDA Natural Resource Conservation Service. Early in the 1990's, California developed the Statewide Biodiversity Council, bringing together federal, state, and county governments to deal with issues involving loss of biodiversity in the State. These efforts have achieved some success in cooperative efforts between agencies and private companies to allow development while preserving important habitat for sensitive or listed species of plants and animals. In 1993, Congress established the Sierra Nevada Ecosystem Project to address public concerns about the Sierra Nevada. Thus, mechanisms are in place for inter- and intra-governmental coordination. In addition, many national forests have adopted a collaborative public involvement process and expectations have been created that communities will be engaged in decisions that

affect them.

Rulemaking and Planning Efforts Affecting These Forests

The Forest Service has a number of concurrent national and regional rulemaking or planning efforts that affect the national forests of the Sierra Nevada mountains. At the national level these are:

1. Proposed National Forest System Land and Resource Management Planning Rule (Planning Rule). The development of new national forest planning regulations that cover all aspects of forest land and resource management and individual project planning to be implemented at the national forest level.
2. Proposed National Forest Road Management and Transportation System Rule (Transportation Policy). A transportation system policy that provides national guidance for the Forest Service transportation system including road construction, reconstruction, and decommissioning to be applied at the national forest level.
3. Proposed Roadless Area Conservation Rule (Roadless Area Conservation Policy). This national roadless area conservation policy will limit road construction and potential land uses in the remaining inventoried roadless areas on all national forests and provide direction for addressing these issues on uninventoried roadless areas through the forest planning process.
4. A Presidential Proclamation establishing a giant sequoia national monument encompassing 328,000 acres of the Sequoia National Forest, which includes about 18,000 acres of giant sequoia groves. The Proclamation was made on April 15, 2000.

Planning efforts at the regional level include:

1. Implementation of the Quincy Library Group legislation (Herger-Feinstein Quincy Library Group Forest Recovery Act, P.L. 103-354) covering the all of the Lassen and Plumas National Forests and the Sierraville District of the Tahoe National Forest.
2. Sierra Nevada Forest Plan Amendment or the Sierra Nevada Framework for Conservation and Collaboration (Sierra Nevada Forest Plan Amendment) that will provide guidance for managing all of the national forests in the Sierra Nevada mountains.

All of these efforts are expected to be completed during the year 2000. Add to these the agency's efforts to develop management direction for the national forests in the entire Interior Columbia River Basin (Interior Columbia Basin Ecosystem Management Project), and in my 30 years with the Forest Service I cannot recall any time when so many large scale policies have been put before the public at one time. Because the agency and the Administration largely controlled the timing of release of these, one would hope and assume that the individual efforts were coordinated and their separate and combined impacts considered.

Do These Efforts Provide an Integrated and Cohesive Strategy?

Do these various rulemaking and planning efforts provide an integrated and cohesive strategy for improving the health of California's forests and foster collaborative stewardship and sustainability? My general impression is that, due to the number of proposals and the volume of documents, it would be difficult for the general public to determine. However, there is evidence that they these proposals either do not or, at best, do so at a superficial level. Only three of the documents even reference any of the other policy efforts and none of them address the combined impacts. Although several of the documents mention the existence of some of the others, there is no attempt to provide an overarching framework, analysis, or definitions (i.e., roads, roadless, and unroaded).

Each proposal was prepared by a different team of Forest Service employees, working in different locations, addressing related issues independently. Hopefully, information and conclusions are being shared between the teams and, especially at the executive decisionmaking level. But, it is not clear that conflicts between these efforts were identified and addressed. For example, the new forest planning regulations propose to implement two key principles from the Committee of Scientists' report [4](#): sustainability is the overarching objective of national forest stewardship and the best way to achieve this is through collaborative stewardship. A quick review of the various documents suggests that they do not consistently address sustainability, especially with respect to forest health and fire risk, or combined and/or cumulative impacts from implementing some or all of the individual policies. And, they collectively send a mixed message about collaborative stewardship.

Do They Consistently Address Sustainability?:

A major consideration for the long term sustainability of California's forests is the need to improve forest health and reduce catastrophic wildfire risk. A recent report by the Forest Service⁵ calls for increased attention to fuels management in the western national forests. It also suggests that as much as 45 percent of the high and moderate fire risk areas will need mechanical pretreatment before prescribed fire or prescribed natural fire can be used. Yet, the Sierra Nevada Management Plan preferred alternatives rely on the use of prescribed fire on as much as 78 percent of the area to be treated, at the same time admitting that prescribed fires produce the most impacts on visibility.

As roads are decommissioned, it will be increasingly difficult and more expensive to use prescribed fires to control stand structures. Prescribed burning may require access for crews and equipment. Forests may be far outside natural fuel levels and, therefore, fire behavior can be unpredictable. Constraints imposed by weather, fuel moisture, and air quality standards may further limit the ability to use prescribed burning at the level anticipated by many of the planning documents. It is conceivable that the inability to deal with high and moderate fire risk areas outside of inventoried and uninventoried roadless areas may increase risk to these areas as well.

While recent advancements in logging technology can reduce the need for some roads, it will still be necessary to provide access if mechanical treatments are to be successfully applied. Efficient access will especially be necessary given the trends in forest management announced by the Forest Service.[6 and 7](#) The trend in timber harvest is toward smaller, less valuable material and less reliance on commercial timber sales. In 1997, 56 exclusively small diameter timber sales were offered in California and received no bids due to the inability to make a profit. Most forest health and fuels management mechanical treatments will remove small diameter and low value materials. The total costs of treatment can be offset to some degree through sale of the material where markets exist. The remaining costs would likely be borne by appropriated funds. This means that more efficient operations will be needed to reduce the overall costs of fuels management and stretch Congressionally appropriated funding to address the need in a timely manner.

The argument is made that the proposed roadless area conservation policy only prohibits road construction and that timber harvesting operations could occur if they can be accomplished without road construction. The same is said for the transportation policy. However, the equipment often mentioned, such as use of helicopters, is expensive and feasible when the forest product values are high. Further, investment by industry in expensive new technology is unlikely unless a predictable supply of raw material is available.

The Forest Service is also advocating use of stewardship contracting and other innovative means to achieve

its management objectives. Again, the transportation and roadless conservation policies could result in increased costs due to reduced access. This, in turn could jeopardize the ability to generate revenues needed to offset appropriated funds to accomplish the other stewardship objectives. The continued use of stewardship contracting would also require Congressional authorization.

Do They Address Combined and Cumulative Effects?:

The various rulemaking and planning efforts each independently address the environmental, economic and cumulative effects of the individual policy, but their cumulative effects on forest health and wildfire are not considered. On one hand, the need to protect large undeveloped areas for biological diversity and other reasons is presented as a reason to prohibit road construction and reconstruction in inventoried roadless areas. On the other hand, compared with the no action alternative, the preferred alternative projects a 54,000 acre reduction in area that can be mechanically treated for fuels reduction in high risk roadless areas over the next five years. This is considered to be insignificant because it is less than 1 percent of all lands that might need fuel treatment.

The roadless area conservation Draft Environmental Impact Statement ⁸ (DEIS) recognizes that "this proposed roadless area rule together with other proposed rules might have a cumulative impact in final form" (p. 3-240). Therefore, the impacts of these interrelated proposals (roadless area conservation, forest planning regulations, and transportation system planning) affect land use and transportation on every national forest and cannot be considered in isolation in separate NEPA documents. Yet, the roadless area DEIS does not provide a comprehensive analysis of these potential effects. Instead, it includes a two and one-half page general discussion of the provisions of the three proposals with broad, non-specific statements of potential effects without analysis.

The roadless area conservation DEIS ⁸ shows that 1,971,000 acres (or 45 percent) of inventoried roadless areas in California are at moderate to high risk from catastrophic fire (Table 3-20) ; 1,368,000 acres (32 percent) of the roadless areas potentially need treatment to reduce fuels. The roadless DEIS also shows that there are 81,000 acres of inventoried roadless areas at combined risk of insect, disease, and fire (Table 3-18). The combined effect of implementing both the transportation system and roadless conservation policies on fire management, use of prescribed fire, or mechanical treatments on risk of catastrophic wildfire or insect and disease mortality is not mentioned. Yet, risks associated with the inability to reduce fuels in roaded areas will likely increase risk in nearby inventoried roadless areas.

The Sierra Nevada Forest Plan Amendment ¹ document identifies 25 percent of the entire study area, 23 percent of emphasis watersheds, and 5 percent of old forest emphasis areas as having the highest fire hazard and risk. Fires that start in these areas are likely to escape initial attack if they occur in untreated stands and spread rapidly into moderate fire hazard and risk areas. The moderate fire hazard and risk areas include between 95 to 98 percent of the old forest emphasis areas and habitat for California spotted owls, northern goshawks, and forest carnivores. The two preferred alternatives call for almost doubling the use of prescribed fire compared to the no action alternative; mechanical treatments would decline by 16 percent for alternative 6 and by 54 percent in alternative 8. This does not seem to reflect the findings and recommendations of the recent comprehensive fire strategy document. ⁵

The place where you might expect all of these separate efforts and combined effects to be integrated for the Sierra Nevada would be in the Sierra Nevada Forest Plan Amendment DEIS. This document was intended to provide a comprehensive, scientifically-based, ecosystem approach to managing the national forests of

the Sierra Nevada. Yet, it doesn't even mention the transportation policy and the roadless area conservation policy, and only acknowledges the existence of the establishment of a giant sequoia monument. This monument affects 328,000 acres and includes 91 percent of the timber sale program on the Sequoia National Forest and 28 percent of the land suited for timber production in the Sierra Nevada subregion south of Yosemite National Park. No effects are identified or discussed. Do these other actions affect the outcomes, environmental effects, and costs of the alternatives considered in the Sierra Nevada Forest Plan Amendment DEIS? We simply do not know, but I would guess that they are not zero.

Do They Support Collaborative Stewardship?:

Finally, while the proposed forest planning regulations call for a collaborative approach to planning, the agency and Administration have embarked on at least three top down national efforts: the transportation policy, roadless area conservation policy, and declaration of a giant sequoia national monument. These efforts result in conflicting messages, destroy public trust and undermine local efforts at coordination and cooperation. I was personally involved in the initial public meetings on the planning regulations in Bozeman and Missoula, Montana, and in northern Idaho. The intent to develop a national roadless area conservation policy was issued the week before these meetings. While some welcomed the announcement, many at the three public meetings said they felt betrayed and that they did not believe that the agency was serious about collaborative planning. I can only imagine what people in the Sierra Nevada might think about the outcome of their efforts on the Sierra Nevada Framework process.

Summary

In conclusion, it is apparent that the Forest Service has simultaneously undertaken an unprecedented number of very large interrelated and complex rulemaking and planning efforts without displaying for public comment the combined and cumulative effects of implementing any combination of them. Of particular concern is the failure to consider the long term effects of a combined reduction of access resulting from the transportation system and roadless area conservation policies on the ability of the agency to achieve its goals in fire risk reduction and improvement in forest health. Largely ignored are the consequences of these policies with respect to recent statements by the agency about a move away from commercial timber harvest to small diameter, lower value species, increased need for mechanical treatment and prescribed fire, and the agencies desire to use stewardship contracting. The combined effects of reduced access, removal of lower valued wood products, and high prescribed fire costs would be an increase in cost for fuels reduction, and, in the absence of significant increases in appropriated funding, could preclude reasonable progress toward restoring forest health.

Finally, the Sierra Nevada Forest Plan Amendment DEIS does not even mention the existence of the transportation system and roadless area conservation policies. While it does recognize the recent giant sequoia monument designation, it does not discuss any impacts on the alternatives described in the document.

Presumably, the Forest Service plans to issue final policies and plans based on all of these documents now moving through the public involvement process. The public is being asked to consider each of these independently. But, if we don't know the combined costs, environmental impacts, and effects on forest sustainability and health from implementing these proposed policies and planning direction, are we not being asked to review and comment without full disclosure? I believe the Forest Service needs to shed some light on these issues so we can make intelligent decisions about the future of our national forests.

Endnotes:

- 1** USDA Forest Service, Pacific Southwest Region. April 2000. Sierra Nevada Forest Plan Amendment. Draft Environmental Impact Statement. Chapter 3.
- 2** SNEP Science Team and Special Consultants. June 1996. Status of the Sierra Nevada. Volume 1. Assessment Summaries and Management Strategies. Final Report to Congress.
- 3** Unknown. Strategies for meeting desired forest conditions in fire prone ecosystems. Working paper dated March 26, 1996. USDA Forest Service Pacific Southwest Region.
- 4** Committee of Scientists Report. March 15, 1999. Sustaining the People's Lands: Recommendations for stewardship of the national forests and grasslands into the next century.
- 5** Lavery, L. and J. Williams. 2000. Protecting people and sustaining resources in fire-adapted ecosystems: A cohesive strategy (draft). Response to GAO Report GAO/RCED-99-65. USDA Forest Service.
- 6** USDA Forest Service, Forest Management Staff. 1998. Changing economics of the national forest timber sale program.
- 7** Chief Mike Dombeck, USDA Forest Service. May 22, 2000. The changing role of timber harvest on our national forests. Speech given to the American Forest and Paper Association, Washington, D.C.
- 8** USDA Forest Service. May 2000. Forest Service roadless area conservation. Draft Environmental Impact Statement. Volume 1.

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